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REMARKS

Claims 1 - 12 and 34 - 50 are pending. Applicants note with appreciation that claims 9, 10, 42 and 45 - 50 are allowed.

Applicants request reconsideration of the rejected claims in light of the following amendments and remarks. Applicants request withdrawal of the outstanding objections and rejections, and allowance of the claims.

I. Claims 34 - 41 and 43 - 44 are fully supported by the specification and drawings.

In the outstanding office action, the Examiner rejected claims 34 - 41 and 43 - 44 under §35 U.S.C. § 112, first paragraph, stating that the limitation "without the use of heat" does not appear to have support in the original disclosure.

In the present invention, the drawings, and Figure 2 in particular, do not show any means for heating the resin, and as such, it is understood by those skilled in the art that there is no heat applied.

While the Examiner relied on the *Vas-Cath, Inc. v. Mahurkar*, 935 F. 2d 1555, 1563-1564, 19 USPQ 2d 1111, 1117 (Fed. Cir. 1991), it is to be noted that the Federal Circuit Court in the *Vas-Cath* case also held that:

"...The CCPA's "written description" cases often stressed the fact-specificity of the issue. *See, e.g., In re Wertheim*, 541 F.2d 257, 262, 191 USPQ 90, 96 (CCPA 1976). ("The primary consideration is *factual* and depends on the nature of the invention and the amount of knowledge imparted to those skilled in the art by the disclosure") (emphasis in original); *In re Smith*, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972). ("Precisely how close the description must come to comply with §112 must be left to case-by-case development"); *DiLeone*, 438 F.2d at 1405, 168 USPQ at 593 ("What is needed to meet the description requirement will necessarily vary depending on the nature of the invention claimed")." *Id* at 1116. (emphasis in original).

The Federal Circuit in the *Vas-Cath* case continued, stating:

"... [i]t should be readily apparent from recent decisions of this court involving the question of compliance with the description requirement of §112 that each case must be decided on its own facts.

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Thus, the precedential value of cases in this area is extremely limited. *In re Driscoll*, 562 F.2d 1245, 1250, 195 USPQ 434, 438 (CCPA 1977).” *Id.* at 1116. (emphasis added).

The Federal Circuit, in *Vac-Cath* also held that:

“...[T]he test for sufficiency of support in a parent application is whether the disclosure of the application relied upon ‘reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter.’ *Ralston Purina Co. v. Far-Mar-Co, Inc.*, 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting *In re Kaslow*, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).” *Id.* at 1116. (emphasis added).

Still further, the *Vas-Cath* Court held that:

“... drawings alone may be sufficient to provide the “written description of the invention” required by §112, first paragraph....” citing *KangaROOS U.S.A., Inc. v. Caldor, Inc.*, 778 F.2d 1571, 1574, 228 USPQ 32, 33 (Fed. Cir. 1985). (emphasis added) *Id.* at 1117.

Still further, the *Vas-Cath* Court held, at 1118, that:

“... The issue here is whether there is supporting “disclosure” and it does not seem, under established procedure of long standing, approved by this court, to be of any legal significance whether the disclosure is found in the specification or in the drawings so long as it is there; citing *In re Wolfensperger*, 302 F.2d 950, 955-56. 133 USPQ 537 at 541-42 (CCPA 1962). (emphasis added).

The specification also shows no use of heat in the claimed process. The specification teaches, at pages 3 - 4, that the resin is liquid and is a quick acting material that sets up within about 20 minutes. Those skilled in the art would recognize that such “quick acting” description refers to materials that do not have any heat applied thereto.

The specification, at page 10, line 18, also discloses an embodiment of a polyester/epoxy blend resin that flows into holes. Those skilled in the art would recognize that such material is flowable at ambient temperatures.

The specification, at page 9, line 16, describes an embodiment where the reinforcement layer hardens. Those skilled in the art would recognize that such

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material is hardened at ambient temperatures since there is no discussion of heat being applied.

In addition, the specification, at page 6, line 11, does describe using heat when necessary for a FRP which is "hot pressed." Those skilled in the art would recognize that when a "hot pressing" step is described as one embodiment, then the other steps are carried out at ambient temperatures.

Finally, the specification fully and adequately mentions heat when necessary to distinguish from ambient temperatures. In particular, the specification, at page 9, line 27 through page 10, line 13, describes the effects of detrimental heat on the composite sheet.

Thus, it cannot be said that the originally-filed disclosure would not have conveyed to one having ordinary skill in the art the concept of evacuating substantially all air trapped between the reinforcement layer and the reinforcement panel through the perforations without the use of heat, thereby bonding the reinforcement layer to the reinforcement panel.

Therefore, at least for these reasons the specification and the drawings fully and adequately describe the present invention as set forth in the claims. The invention, as described in the specification and claims 34 - 41 and 43 - 44, is conveyed in such a way as to reasonably convey to one skilled in the relevant art that the inventors at the time the application was filed, had possession of the claimed invention. Accordingly, Applicants respectfully request reconsideration and withdrawal of the rejections of record, and allowance of all claims.

II. Claims 1, 3, 34 and 38 are novel.

In the outstanding office action, the Examiner rejected claims 1, 3, 34 and 38 under §35 U.S.C. § 102(b) as being anticipated by the U.S. Patent No. 5,446,250 to Oka reference (hereinafter Oka '250 reference). Applicants contend that these claims are patentable over this reference, and request withdrawal of the rejection under 35 U.S.C. §102.

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A. Claims 1 and 34

Independent claims 1 and 34 recite a method of manufacturing a composite sheet consisting essentially of various enumerated steps, and the method necessarily excludes other elements and other steps.

In the method described in claims 1 and 34, the composite sheet consists essentially of three layers: i) an outer coat 16; ii) a reinforcement layer 28; and iii) a perforated reinforcement panel 29.

In contrast, the Oka '250 reference describes a dampening material having at least four layers: i) a gel coating 15; ii) a fiberglass base plate layer 12; iii) a cushioning material 13; and, iv) a restraining layer 14. The Oka '250 reference thus requires a fourth layer, the restraining layer 14, which is a fiberglass reinforced plastic layer.

Therefore, claims 1 and 34 are not anticipated by the '250 Oka reference which requires a "four-layer" material and the Examiner is respectfully requested to withdraw this rejection.

B. Claims 3 and 38

Independent claims 3 and 38 also recite a method of manufacturing a composite sheet consisting essentially of various enumerated steps, and the method necessarily excludes other elements and other steps.

In the method described in claims 3 and 38, the composite sheet consists essentially of four layers: i) an outer coat 16; ii) a reinforcement layer 28; iii) a perforated reinforcement panel 29, and iv) a pervious polymer sheet 62. Claims 3 and 38 have been amended in response to the Examiner's comments to more fully state that the fourth layer is pervious so that a vacuum pressure can be pulled through the fourth layer. Applicants submit that such amendment is being made in response to the Examiner's comments and that no additional searching of the invention as now claimed is needed.

The fourth layer in the Oka '250 reference is a rigid restraining layer made of a fiberglass reinforced plastic layer. (See '250 Oka reference, at column 3, line 6). The '250 Oka fourth layer material is not pervious and could not be used in the

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present invention where the top layer must be pervious in order to allow an applied vacuum pressure to force the resin into the perforations in the reinforcement panel.

The present invention, as recited in claims 3 and 38, does not provide a restraining step or restraining layer. Therefore, the Oka '250 reference actually teaches away from the present inventive method by requiring a restraining layer.

Therefore, claims 3 and 38 are not anticipated by the '250 Oka reference which requires a "four-layer" material, and the Examiner is respectfully requested to withdraw this rejection.

III. The dependent claims 2, 4 - 8, 11 - 12, 35 - 37, 39 - 41 and 43 - 44 are also unobvious and patentably distinct.

The invention, as set forth in the dependent claims 2, 4 - 8, 11 - 12, 35 - 37, 39 - 41 and 43 - 44, presents novel combinations of process steps that have not been previously performed in such novel combinations of steps in order to make a novel high gloss composite sheet.

The Supreme Court has held that there is "no legally recognizable or protected 'essential' element, 'gist' or 'heart' of the invention in a combination patent." *Aro Mfg. Co. v. Convertible Top Replacement Co.*, 365 U.S. 336, 345, 128 USPQ 354 (Sup. Ct. 1961). Thus, the invention is defined by the claims as a whole.

It is to be noted that the dependent claims herein do not *only* include the steps recited in the independent claims, the dependent claims also include a *combination* of various steps never contemplated or suggested in any of the cited references, either when such references are considered alone, or in combination.

Thus, the present invention describes a novel manufacturing process for composites which include at least the following steps:

- i* - perforating a reinforcement panel;
- ii* - providing a mold surface onto which a composite sheet may be formed;
- iii* - applying at least one outer coat of material onto the mold surface;

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- iv* - applying at least one coat of resin and reinforcement material over the outer coat to form a reinforcement layer;
- v* - applying the perforated reinforcement panel to the reinforcement layer; and/or,
- vi-1* - forcing the resin into the perforations formed in the reinforcement panel, thereby bonding the reinforcement layer to the reinforcement panel; or
- vi-2* - evacuating substantially all air trapped between the combined reinforcement layer and the reinforcement panel through the perforations.

Further various novel inventions are set forth in the dependent claims where the above-described combination invention (i.e., steps *i* to *vi-1*, or *vi-2*) includes one or more of the following steps:

- vii* - applying a vacuum to the perforated reinforcement panel;
- viii* - creating a plurality of tapered holes in the reinforcement panel;
- ix* - perforating by applying at least one roller against a surface of the reinforcement panel, the at least one roller having a plurality of perforating pins;
- x* - having an outer coat of material, when cured, displays substantially no visible sink marks on an exposed surface of the outer coat opposite the tapered holes;
- xi* - evacuating substantially all air trapped between the resin and the resin and the reinforcement panel; and/or,
- xii* - applying at least one outer coat of material onto the mold surface prior to the resin.

The dependent claims include one or more of the novel combinations of steps (i.e., selected from one or more of steps *vii* - *xii* above). It is submitted that each of the following sets of dependent claims are patentably distinct for at least the following reasons:

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A. Claims 2 and 35 - 37

The Examiner rejected claims 2 and 35 - 37 under 35 U.S.C. §103 as being unpatentable over the Oka '250 reference in view of the Weinstein et al. U.S. Patent No. 4,082,882 (hereinafter, "Weinstein '882 reference") reference. Applicants contend that all the claims are patentable over these cited references, and request withdrawal of the rejection under 35 U.S.C. §103.

Claim 2 depends from claim 1 (which recites steps *i* to *vi-1*) and additionally recites step *vii*. Claims 35 - 37 depend from claim 34 (which recites steps *i* to *vi-2*); claims 35 additionally recites step *vii*, while claim 36 additionally recites step *xi* and claim 37 additionally recites step *xii*.

There is no motivation to modify the Oka '250 reference with the vacuum step of the Weinstein '882 reference to meet the invention recited in claims 2 or 35 - 37. The Oka '250 reference places a non-pervious restraining layer on a perforated cushioning layer. The Weinstein '882 reference describes a process where a ribbed roller is used to force the resin through a fiberglass material having no holes therein.

B. Claims 4 - 6, 8, 39 - 40 and 44

The Examiner rejected claims 4 - 6, 8, 39, 40 and 44 under 35 U.S.C. §103 as being unpatentable over the Oka '250 reference in view of JP abstract 62-064527 (hereinafter "JP '527 abstract"). Applicants contend that these claims are patentable over these cited references, and request withdrawal of the rejection under 35 U.S.C. §103.

The claims 4 - 6, 8, 39, 40 and 44 depend from the amended independent claims. Applicants contend that these claims are patentable over these references, and request withdrawal of the rejection under 35 U.S.C. §103.

Claims 4 - 6, 39 - 40 and 44 each additionally recite step *viii*. Claim 8 additionally recites step *x*.

The Examiner has admitted that the Oka '250 reference does not teach or suggest tapered holes.

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The JP '527 abstract teaches the use of two sequential steps that are needed to form the JP '527 material: first, heat is applied to the materials, and, second, ultrasonic vibration is used to push a melted material into holes in an adjacent material.

The JP '527 fails to supply any of the deficiencies of the Oka '250 reference. Rather, the JP '527 reference teaches away from the present invention by requiring extra steps of heat and ultrasound.

C. Claims 7 and 41

The Examiner rejected:

claim 7 under 35 U.S.C. §103 as being unpatentable over the Oka '250 reference in view of the Tellman et al. US Patent No. 4,655,859 reference (hereinafter "Tellman '859 reference"); and;

claim 41 under 35 U.S.C. §103 as being unpatentable over the Oka '250 reference in view of the JP '527 abstract and further in view of the Tellman '859 reference. Applicants contend that these claims are patentable over these cited references, and request withdrawal of the rejection under 35 U.S.C. §103.

Claims 7 and 41 additionally recite step *ix*.

The Tellman '859 reference teaches the scoring of veneered products with longitudinally extending blades in order to facilitate the drying of the product. One skilled in the art would not look to the drying step of the Tellman '859 reference in order to form perforations through which a resin could be forced. There is nothing in the Tellman '859 reference which supplies the deficiencies of the earlier discussed JP '527 abstract and the '250 Oka reference. There is no teaching or suggestion in the combination of the cited references to form holes in a reinforcement panel and to force resin into such holes without the application of external heat.

D. Claims 11 - 12 and 43

The Examiner rejected claims 11 - 12 and 43 under 35 U.S.C. §103 as being unpatentable over the Oka '250 reference in view the Sharp US Patent No. 5,054,645 reference (hereinafter "Sharp '645 reference"). Applicants contend that

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these claims are patentable over these cited references, and request withdrawal of the rejection under 35 U.S.C. §103.

Claims 11 - 12 and 43 additionally recite step *viii*.

The Sharp '645 reference teaches the use of resinous columns formed in a multi-layer material for underground tank. There is no teaching or suggestion in the combination of these references to form holes in a reinforcement panel and to force resin into such holes without the application of external heat. Therefore, the Sharp '645 reference fails to supply any of the deficiencies the Oka '250 reference, taken either alone, or in combination.

IV. Conclusion

Independent claims 1, 3, 34 and 38 have been shown to be patentable over cited references. The dependent claims 2, 4 - 8, 11 - 12, 35 - 41 and 43 - 44 set forth further inventive features and are also separately patentable over the cited references.

In summary, none of the cited references teach or suggest the various novel combinations of steps disclosed in the present invention. Rather, the cited references each rely on different types of extra processing steps, such as, for example: adding a nonpervious restraining layer, heating materials in order to melt and flow such melted material into the holes; using a ribbed roller to force the resin through the fiberglass; and/or, heating along with applying a vacuum.

In view of the above amendments and remarks, Applicants have further shown that the invention, as defined in the pending claims, is neither disclosed nor suggested by the references of record. Accordingly, Applicants respectfully request reconsideration and withdrawal of the objections and rejections of record, and allowance of all claims.